Dental and Periodontal Disease

- Diabetes is a risk factor for chronic periodontal disease.
- Periodontal disease is the most prevalent oral complication of diabetes.
- Periodontal infections may affect blood glucose control.
- Good blood glucose control is an effective tool in preventing periodontal disease.
- Data obtained from current studies indicated a link between periodontal disease and inflammation, and increased the risk factors for atherosclerosis.
- Early intervention with fluoride may be indicated in communities with un-fluoridated water and may be beneficial in infants and children. Refer to the most current guidelines at http://www.cdc.gov/fluoridation/guidelines/tooth_decay.htm.
- Currently, the ADA offers no guidelines on dental examination beyond initial oral cavity examination. The Centers for Disease Control recommends individuals that have diabetes should see a dentist every six months and more often if periodontal disease is present.
- Current research shows individuals with diabetes are less likely to seek preventive dentistry than their non-diabetic counterparts.

What recommendations should healthcare providers and diabetes educators make to their patients regarding oral and dental hygiene?

Health care providers and diabetes educators should educate patients on the importance of maintaining good oral hygiene through regular dental exams every six to twelve months, brush teeth at least twice daily, floss regularly, and report any bleeding or sores on gums. Mouth infections and disorders of the gum are more prevalent when blood glucose levels are elevated. Compromised oral conditions related to periodontal disease such as missing teeth, dental caries, and oral infection can affect nutrition and glycemic control. At a minimum, patients and families should receive education on the following:

- Diabetes and oral health
- Maintaining glycemic control
- Cessation of smoking and tobacco use
- Healthy meal planning
- Proper brushing and flossing
- Dental examination, at least annually

How does periodontal disease occur?

Periodontal disease occurs when the periodontal ligament, which joins the root of the tooth to the alveolar bone (tooth socket), is destroyed by bacteria. Infection may develop as the tissue surrounding the tooth recedes. A periodontal pocket then develops, harboring an increasingly anaerobic environment. Normal brushing and flossing can no longer reach this area and a biofilm or plaque, consisting of communities of pathogenic bacteria, develops. These biofilms or plaques are resistant to normal body defenses and chemotherapeutics. The cells and molecules within this pocket are inflammatory and play a role in the pathogenesis of diseases. An increase in C-reactive protein, an inflammatory marker present in periodontal inflammation, is a risk factor for atherosclerosis. According to the American Heart Association, an elevation of the highly sensitive C-reactive protein can be a predictor for stroke and cardiovascular events.

The destruction that occurs with periodontal disease is caused by the body's excessive inflammatory response to the periodontal pathogens and its inability to properly resolve this response. Diabetes, tobacco use, and genetic risk factors greatly affect how the body responds to the inflammatory response.

What is the treatment for periodontal disease?

Treatment for periodontal disease consists of debridement, usually with the addition of antibiotics following the procedure. Non-steroidal anti-inflammatory drugs (NSAIDS) can be used to slow or halt the inflammatory response but tend to also slow or halt the beneficial effects of the inflammatory response. Aspirin can also be used to modulate the inflammatory response. Prevention of periodontal disease in patients with diabetes requires an annual dental exam for gum and periodontal disease. Patients with significant periodontal disease require more frequent monitoring and treatment to control the periodontal disease.

What is the Scottsdale Project and what is its impact on patients with diabetes?

The Scottsdale Project Report data was released in September of 2007, and proposes that providers screen all patients for periodontal disease and refer as necessary. The report also suggested the following management plan for patients with diabetes (Grand Rounds in Oral-Systemic Medicine, 2007):

1. Patients with diabetes should be medically managed as recommended by the American Diabetes Association.
2. Patients with diabetes should have a dental exam at a minimum of twice a year, or more frequently if advised by the dental provider, and receive appropriate dental/periodontal care.
3. There should be close communication between the primary care physician and the dentist.
4. Medical providers should advise patients with periodontal disease that it is a chronic infection of the gums and a complication of diabetes.
5. Medical providers should also advise patients that periodontal disease has been associated with significant health problems, including worsening metabolic control and other complications of diabetes, coronary artery disease, and stroke.
6. Medical providers should advise the patient that periodontal disease can be treated by the dentist and dental hygienist, and in more severe case, refer to a periodontist (gum specialist).
7. If the patient has not seen a dentist within the last year, or if there are signs of periodontal disease, the patient should be advised to make an appointment to see a dental provider right away.

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